INSTITUTE OF PUBLIC HEALTH

COLLEGE OF MEDICINE AND HEALTH SCIENCES

UNIVERSITY OF GONDAR

PREVALENCE AND RISK FACTORS OF ACTIVE TRACHOMA AMONG CHILDREN AGE 1 TO 9 YEARS IN MAKSEGNIT TOWN, GONDAR ZURIA WOREDA, NORTHWEST ETHIOPIA.

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A THESIS SUBMITTED TO INSTITUTE OF PUBLIC HEALTH, COLLEGE OF MEDICINE AND HEALTH SCIENCES, UNIVERSITY OF GONDAR IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PUBLIC HEALTH.

MAY, 2012

GONDAR, ETHIOPIA

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ACKNOWLEDGEMENTS

First and foremost, I would like to thank my advisors Professor Yigzaw Kebede and Mr. Haimanot G/Hiwot for their constructive comments from the draft of the proposal to the completion of the thesis. I am also grateful to the people of the study area of Maksegnit town (both children and their parents) for their participation in my study. I would also like to thank ORBIS International Ethiopia for its financial assistance. Finally, I extend my gratitude to all people who were besides me.

LIST OF ACRONYMS

A, F, E	Antibiotics, Facial cleanness, Environmental Sanitation
AOR	Adjusted Odds Ratio
BSc.	Bachelor of Science
CI	Confidence Interval
DALYs	Disability-Adjusted Life Years
ETB	Ethiopian Birr
G.C	Gregorian Calendar
MPH	Master of Public Health
MD	Medical Doctor
MSc	Master of Science
NTD	Neglected Tropical Disease
ORBIS	Orbiting Radio Bearer Ionospheric Satellite
OR	Odds Ratio
SAFE	Surgery, Antibiotics, Facial cleanness and Environmental sanitation
SD	Standard Deviation
SPSS	Statistical Package for Social Sciences
TF	Trachomatous Follicle
TF/TI	Trachomatous Follicle and/or Trachomatous Intense
TT	Trachomatous Trichiasis
WHO	World Health Organization

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ABSTRACT

Background*: Trachoma is a leading preventable infectious eye disease caused by repeated infection with eye strains of the bacteria Chlamydia trachomatis in developing countries that have poor environmental sanitation, inadequate water supply and poor socio-economic status. The disease is still a major public health problem in some countries including Ethiopia despite the different efforts being made.*

Objective*: To assess the prevalence and risk factors of active trachoma among children age 1-9 years old in Maksegnit town, Gondar Zuria Woreda, North Gondar, Northwest Ethiopia.*

Methods*: Cross-sectional community based study was conducted in April 2012. A total of 420 children (age1-9 years old) from 420 households were included in the study. All children were examined for trachoma by Optometrists and Ophthalmic officer using the World Health Organization (WHO) simplified clinical grading system. Interviews and observations were used to assess risk factors. Descriptive statistics was carried out for variables in the study and OR with 95% CI was used to assess the association between the potential risk factors and active trachoma.*

Results*: A total of 420 children 1 to 9 years old from 420 households were included in the study. The overall participation rate was 99.8%. The prevalence of active trachoma was found to be 100 (23.8 %). The prevalence was detected in 57(13.6%) and 43 (10.2%) males and female children respectively. Unclean face (AOR=4.12; 95%CI: 1.92, 8.81), flies on face (AOR= 2.310; 95%CI: 1.32, 4.05) and using wood and animal dung as a source of energy for cooking (AOR=2.190; 95%CI: 1.152, 4.163) were independent predictors of active trachoma*.

Conclusion*: Trachoma is still a major public health problem in the study area as more than 10% of children with the active form of the disease were in the age group 1 to 9 years.Trachoma prevention programs that include smoke-free source of energy such as electricity, active fly control, and hygiene education are recommended to lower the burden of trachoma in Maksegnit town.*

Keywords*: Active trachoma, prevalence, Maksegnit*

1. INTROCUCTION

1.1. Statement of the problem

Trachoma is the commonest infectious cause of blindness. Recurrent episodes of infection with serovars A–C of Chlamydia trachomatis cause conjunctival inflammation in children who go on to develop scarring and blindness as adults. Recurrent episodes of conjunctival infection due to trachoma and the associated chronic inflammation it causes initiate a scarring process that ultimately leads to irreversible blindness (1). Trachoma is an ancient disease and has previously been a significant public health problem in many areas of the world including parts of Europe and North America. Today, however, trachoma is largely found in poor, rural communities in low-income countries, particularly in sub-Saharan Africa in which 150 million people have active infection, over 5 million are blind or have serious visual loss from trachoma and 100 million children are thought to be in need of treatment (2, 3).

The World Health Organization (WHO) endorses a four-pronged approach to eliminate blinding trachoma by the year 2020 known as SAFE: Surgery for trichiasis, Antibiotic against infection, Facial cleanliness, and Environmental sanitation .This has been associated with significant reductions in the prevalence of active disease over the past 20 years, but there remain a large number of people with trichiasis who are at risk of blindness resulting from recurrent childhood infection (4).

This study will try to provide further data on the prevalence and risk factors of active trachoma which remains a big public health problem regardless of the efforts undertaken.

1.2 . Literature Review

1.2.1. **Worldwide magnitude and burden of trachoma**

The Global burdens of trachoma are its disabling sequelae of visual impairment and trichiasis. These have a major advantage over the disease sequelae reported for many other Neglected Tropical Diseases (NTD) since they can be readily measured or observed clinically and do not require special investigations. Visual impairment can have a great impact on many aspects of the life of individuals, their families and the wider community(5).

Trachoma infection starts during infancy and reoccurs during childhood. It affects people's live by reducing their ability to be productive (6, 7).

Globally, 1.2 billion people live in endemic areas, 40.6 million people are affected from active trachoma, and 8.2 million have trichiasis secondary to recurrent infection during childhood. 48.5% of the global burden of active trachoma is highly distributed in five countries: Ethiopia, India, Nigeria, Sudan and Guinea. Overall, Africa is the most affected continent; 27.8 million cases of active trachoma (68.5% of all) and 3.8 million cases of trichiasis are located in 28 of the 46 countries in the WHO African Region. Trachoma is still prevalent in some countries or areas of countries of four other WHO regions: the Eastern-Mediterranean, South-East Asia and the Americas. The European region is the only WHO region to be free of trachoma (8).

Data from WHO indicate that there are more than 3 million people requiring treatment for trachoma in endemic areas in Latin America, especially in Brazil, Guatemala, and Mexico. In 2005 it was believed that the prevalence of the inflammatory and follicular phase of the disease in children under 10 years old was 4.5% in Brazil, 1.9% in Guatemala, and 1.9% in Mexico(9).

The most recent estimate from the WHO places the burden of trachoma at 1.3 million disability-adjusted life years (DALYS)(10). However estimates of its global burden are faced with several problems including a lack of robust prevalence data and the decision over inclusion of different disease manifestations(5).

Trachoma as a public health problem is defined by the WHO as a prevalence of Trachomatous follicular (TF) of at least 10% in children aged 1–9, or a prevalence of Trachomatous trichiasis (TT) of at least 1% in those aged 15 or more. Trachoma is no longer considered a public health problem when the TF prevalence in children falls below 5% and the prevalence of TT is <0.1% (11). Studies from Australia and Asian countries showed that there is a great variation in the prevalence of active trachoma among children (12, 13).

In Africa, prevalence studies on active trachoma among children showed a variation from place to place. A study done in Nigeria (2009), aged 1–5) 35.7%, Burkina Faso (2011), 13.30% (, Tanzania (2006) 9.1%, , Niger (2007), 43% (95% CI 39% to 47%) children (aged 1-5), Sudan (2007) 64.5% (14-19).

1.2.3. Magnitude of active trachoma in Ethiopia

Trachoma is a public health problem in Ethiopia accounting for 35–50% of cases of blindness and its prevalence among children population is very high (20). Of the national prevalence of blindness (1.6%) in 2006, trachoma contributed 11%. Among this 44% of children between the ages of 1- 9 years (21). The national prevalence of active trachoma (either TF or TI) for children in the age group 1-9 year in 2007 was 40.14% with a considerable regional variation; the highest prevalence being in Amhara (62.6%)(19). A cross-sectional community-based study conducted in Ankober (2009) on children (ages 1–9 years); the prevalence of active trachoma was 53.9% (22). A study from Tigray region(conducted in 2006) also showed that the prevalence of active trachoma among children aged≤10 years was 59.2% (23).

1.2.4. Risk factors for active trachoma

The risk factors for trachoma vary between settings depending on individual and environmental factors as well as climatic conditions which may be important determinants of trachoma transmission. The individual factors include, age, sex, educational level, life style habits such as poor personal hygiene (face washing) cleanliness, poor sanitation, socioeconomic status, household crowding, having cattle, and environmental risk factors include exposure to flies, limited access to clean water, fly density, waste disposal system, presence of garbage with the environment, availability of latrine, latrines near living quarters. Understanding risk factors is essential in designing appropriate interventions for the 'F' and 'E' components of the SAFE strategy(18, 22, 24-31).

As its magnitude of active trachoma shows variation from place to place, the risk factors of it also show variation:

Studies from some parts of Africa reported that children (aged 1-5 years) with trachoma were more likely to have unclean face, or clean face but with flies, the time taken to walk to the water source, and wait for collecting water, animal pen in the compound. Crowding, garbage within the compound, children aged 3–5 years compared with children aged 1–2 years, less frequent face washing absence of pit latrine, cattle ownership and increasing household fly density, Increasing distance to the nearest water source, highest quartile compared to lowest, children with a fly on their eye ('fly-eye'). However, older age was associated with decreased odds (18, 16, 17). A study in Tanzania and Gambia also showed ocular or nasal discharge, a low level of household head education, and being aged ≥ 1 year, flies on the child's face, and crowding as a risk factor follicular trachoma (TF)(29). Personal and environmental risk factors were also reported as a risk factors for trachoma in Nigeria as the presence of flies on the face and lack of a toilet in the compound were independent risk factors for trachoma(14).

In Southern Sudan factors independently associated with reduced odds of a more severe active trachoma sign were: clean face; washing faces of children three or more times daily, and presence and use of a pit latrine in the household (32).

In Ethiopia, risk factors of active trachoma vary from place to place. A study in Tigray region on active trachoma (TF or TI) among children aged≤10 years reported that the absence of latrines in households, open field waste disposal practices, cooking inside living rooms and the use of biomass fuels were associated with increased active trachoma. The presence of a kitchen/a cooking site with an attached chimney was protective of trachoma. Neither the location of an animal shed in relation to living rooms nor living in a crowed condition was strongly associated with active trachoma. Spending more time in fetching water, poor face habits and infrequent use of soap for face washing were strongly related with active trachoma. Active trachoma was significantly higher among the younger age, those who rarely washed their face on daily basis and those who did not often use soap for face washing (AOR=1.47; 95% CI=1.2–1.8)(19). A survey in Amhara Regional State of Ethiopian on active trachoma among children was independently associated with, low socio-economic status in households. Ocular discharge, nasal discharge, increasing household size, unsafe water source while Increasing age (per additional (year) was associated with reduced odds of active trachoma (30).

Cross-sectional community-based study in Ankober, among children (ages 1–9 years) revealed that active trachoma was significantly associated with a number of risk factors including fly contact, absence of facial cleanliness, an illiterate mother, absence of facial cleanliness, an illiterate mother, an illiterate father, lack of access to piped water, and lack of access to latrine facilities were statistically significantly associated with increased prevalence of active trachoma. Gender was not significantly associated with risk of active trachoma (31).

1.3. Justification of the proposed study

Trachoma is one of the major causes of blindness in developing countries including Ethiopia. Its recurrent infection during childhood, without intervention, ends in blinding trichiasis that leads people to dependency in economical, social and psychological aspects.

This study generated additional information for policy makers on the prevalence and potential risk factors of active trachoma which enables to plan and implement suitable methods to control and prevent trachoma blindness. It will also contribute its own roles to achieve the ultimately goal of VISION 2020: “Elimination of Trachoma by the year 2020.”

1. OBJECTOVES

1.1. General objective

To assess the prevalence and risk factors of active trachoma among children age 1 to 9 years old in Maksegnit town, Gondar Zuria Woreda, North West Ethiopia, in 2012 G.C.

1.2. Specific objectives

To determine the prevalence of active trachoma among children age 1-9 years old in Maksegnit town.

To identify factors associated with active trachoma among children age 1-9 years old in Maksegnit town.

3. METHODS

3.1. Study design: Community based Cross sectional study design

3.2. Study area and study period

The study was conducted in Maksegnit town. Maksegnit town, located 40 kilometers to south of Gondar town, is one of the towns found in Gondar Zuria Woreda clustered into 7 ketenas. There were 11,444 people, of whom 5,544 were males and 5,900 females within 3,580 houses (33). Of the total population 3305 were children aged 1-9 years old. There are one health center, one vocational training center, one preparatory school, one high school, one primary school and one kindergarten school in the town.

The study period was from March to April 2012.

3.3. Source and study population:

3.3.1. Source population: All Children age 1-9 years old in Maksegnit town

3.3.2. Sample population: All Children whose age is between 1-9 years old living in the randomly selected houses were the study population.

3.4. Inclusion and exclusion criteria

3.4.1. Inclusion criteria: The study included children aged 1-9 years old in the randomly selected household.

3.4.2. Exclusion criteria: Children who were unable to undergo physical examination for trachoma evaluation due to serious sickness during the study period.

3.5. Variables of the study

Dependent variable:

Active trachoma

Independent variables

Socio demographic variables: household income, educational level of mother, educational level of father, sex of child, age of child, cattle ownership.

Personal variables: Face washing habit, frequency of washing, use of soap to wash face, discharge on face, facial cleanness.

Environmental variables: water availability, Latrine availability, number of fly, waste disposal site, household crowding, and distance to water source, amount of water fetched per day.

3.6. Operational definitions

Active trachoma: The presence of at least five or more follicles in the upper tarsal conjunctiva and/or pronounced inflammatory thickening of the tarsal conjunctiva that obscures more than half of the normal deep tarsal vessels (TF and/or TI(3)

Unclean face: If nasal and/or ocular discharge presented prior to screening for signs of active trachoma after brief inspection of child face (4).

Number of flies: Presence of flies on children's faces and around the doorways for about half a minute during the examination time which was graded as none (0 flies), few (1–4 flies), or many (≥5 flies)(1).

Flies on the face: was coded ''yes'' if a fly landed anywhere on the child's face within half minute during the examination for active trachoma(14).

3.7. Sample size determination

The sample size was determined by using the single population proportion formula with the following assumptions.

Level of significance (α) = 5% (with confidence level of 95%)

Marginal error (w) = 5%

P=0.539 **(**prevalence of active trachoma among children age 1-9 years old in Ankober (31).

A Z-value of 1.96 was used at 95% CI and w of 5%. (n= sample size, P= proportion, w= marginal error).

$$n = \frac{z^2_{\alpha/2}\, p\,(1-p)}{w^2}$$

$$n = \frac{z^2_{\alpha/2}\, p\,(1-p)}{w^2}$$

$$= \frac{(1.96)^2(0.539)\,(0.461)}{(0.05)^2}$$

$$n = 382$$

After adding 10% for non-response/participation rate the final sample size was 421 children.

3.8. Sampling procedures

Households were selected using systematic random sampling technique (k=8, where k was calculated by dividing the source population (3305-children age 1-9 in Maksegnit town) by the calculated sample size (421) which is 3305/421=8) and a lottery method was used to select a child in houses which had more than one children age 1-9 years old. If there was no child/children in the selected house a child in the next house was selected.

3.9. Data collection procedures

3.9.1. Data collection instruments

Interview (face to face) was carried out with pretested structured questionnaires in a similar and nearby area to Maksegnit (Teda town) to obtain information on socio-demographic characteristic and environmental risk factors for active trachoma. Observation was also used to assess risk factors (facial cleanness, discharge, fly on face, fly density) and signs of active trachoma.

3.9.2. Data collection procedure

Prior to the survey, the questionnaire was translated from English to Amharic and then back to English (by a linguistic personnel) to ensure accuracy and consistency. The study tools were then pretested in nearby area of study site that had not been sampled, to validate questions and observations. Households were selected through systematic random sampling technique and eligible children age 1-9 years old within the selected households were clinically assessed for active trachoma. Data collectors (Optometrists) first greeted and introduced themselves to the randomly selected house head by explaining the purpose of their presence there at the household. Face to face interview using structured questionnaires with household head was conducted in Amharic and direct observation was used to measure personal and environmental (household) risk factors by an Optometrists and Ophthalmic officer. The child's face assessment was carried out before the trachoma examination for cleanness, discharge and flies on face. The trachoma grader (an Optometrist and Ophthalmic officer), wearing 2.5x loupes, assessed each eye for signs of active trachoma using the WHO simplified grading scheme (Annex **II**). There were four Optometrists for data collection and one Ophthalmic officer for supervision.

3.9.3. Data quality control

Data was collected with a pretested structured questionnaire prepared using and depending on literature review and identified variables. Training was given to data collectors and supervisor for one day on how to do examinations on study subjects, on how to use the questionnaire and the guidelines.

The collected data was checked out for the completeness, accuracy and clarity by the principal investigator and supervisor on daily basis. Filled data was checked on daily basis by the supervisor and amendments were done at the spot. Additional two visits were done for households which were closed, children and parents who were not available in the first and second visit. Data clean up and cross-checking was done before analysis.

3.10. Data management and analysis

After coding, data were entered using EPI INFO 2002 and exported to SPSS version 16 for analysis. Analysis was done by the investigator using the same computer package. The descriptive statistic and logistic regression were carried out to compute the different proportion and relevant associations. Bivariate and multivariate logistic regression was conducted. The variables that were found to be significant at the 5% level in bivariate logistic regression were entered into the multivariate logistic regression model at a 95% confidence interval with enter method was conducted to determine the actual predictors for active trachoma.

3.11. Ethical consideration

Before conducting the study, ethical clearance was obtained from the Institutional Ethical Review Board of Institute of Public Health, University of Gondar and supporting letters were obtained from the administrator of Maksegnit town. Though people were not either exposed to unnecessary risk or inflict harm; an oral consent of each participant was taken after explaining the purpose of the study. Assent from children were also obtained before evaluation for active trachoma. Confidentiality of the information was maintained thoroughly by excluding names as identification in the questionnaire and keeping their privacy during data collection and also results were kept securely. Participants with active trachoma were given a prescription paper to buy tetracycline by themselves from local pharmacy and were advised on facial cleanness and how to use the drug.

4. RESULTS

4.1. Socio-demographic characteristics of the study population

A total of 420 children whose age was 1-9 years form 420 households were included in the study. The overall participation rate was 99.8%. One child, whose families' were unwilling for trachoma evaluation, was not included. Two hundred nine (49.8%) of the children were male and two hundred eleven (50.2%) were female. The male to female ratio was 0.99:1.0 and the median age of the study children was 5.38 years with interquartile range of 7 to 4 years, with minimum and maximum value 1 and 9 years, respectively.

Of the total 420 children, 348 (81.1%) were from families whose religion affiliation was Orthodox. Above ninety eight percent of study children were Amhara and the rest were Tigre and Kimant. Majority of study children were from families whose occupation was daily laborers and a small number children form weavers (see Table 1).

Table 1: Distribution of study children by socio-demographic characteristic in Maksegnit town, Gondar Zuria Woreda, April 2012 (n=420).

Demographic characteristics	Number	Percentage
Religion		
Orthodox	342	81.4
Muslim	77	18.4
Protestant	1	0.2
Ethnicity		
Amhara	412	98.1
Tigre	5	1.2
Kimant	3	0.7
Total	420	100
Sex		
Male	209	48.9
Female	211	50.1
Age group (Median=6, Interquartile range 7-4)		
1-3years	87	20.7
4-6years	194	46.2
7-9years	139	33.1
Total	420	100
Occupation of head of the household		
Daily laborer	105	25.0
Merchant	92	21.9
Government employed	73	17.4
Farmer	32	7.6
Weaver	24	5.7
Others (craftsman, Kitting, priest, military…)	94	22.4
Educational level of child's mother		
Can't read and write	240	57.1
Can read and write only	26	6.2
Primary school completed	49	11.7
Secondary school completed	66	15.7
Certificate	5	1.2
Diploma	29	6.9
Degree and above	5	1.2

Table 1 : Continued

Educational level of father		
Can't read & write	**148**	35.2
Read and write only	**56**	13.3
Primary school completed	**72**	17.1
Secondary school completed	**69**	16.4
Certificate	**2**	0.5
Diploma	**28**	6.7
Other (not alive)	**18**	6.4
Number of people sharing one room		4.4
Below 5	**245**	**57.9**
5	**61**	**14.5**
Above 5	**116**	**27.6**
Cattle ownership		
Yes	**53**	**12.6**
No	**367**	**87.4**
Monthly income		
<500	**267**	**63.6**
500-1000	**98**	**22.9**
>1000	**57**	**13.5**
Total		

4.2. Environmental/household characteristic

Housing condition

Family members of 40(9.5 %) children cooked their food in living room where as families of 380 (90.5%) children cooked in a separate room. Among family members who cooked their food inside home 21(52.5%) had chimney/window and 19(47.5%) had not.

Out of the total four hundred and twenty children, fifty three (12.6%) of them were from families who had animals (cattle, sheep, goat, horse) and thirty of them shared the same room with animals whereas twenty three of the children among those families who had animals lived in a separate room. The main energy source for household food cooking was mainly wood and animal dung (see Figure 1).

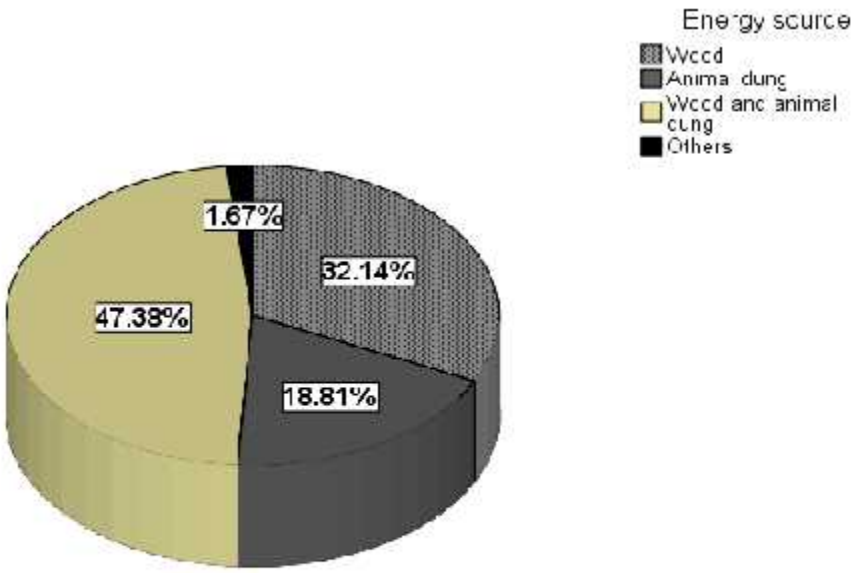

Figure 1: Energy source in households of study children, Maksegnit town, April 2012.

Water source and water consumption

The common sources of water for household consumption in the study area were from pipe and river, accounting for 363(86.4%) and 24(5.7%) households respectively (see Figure 2).

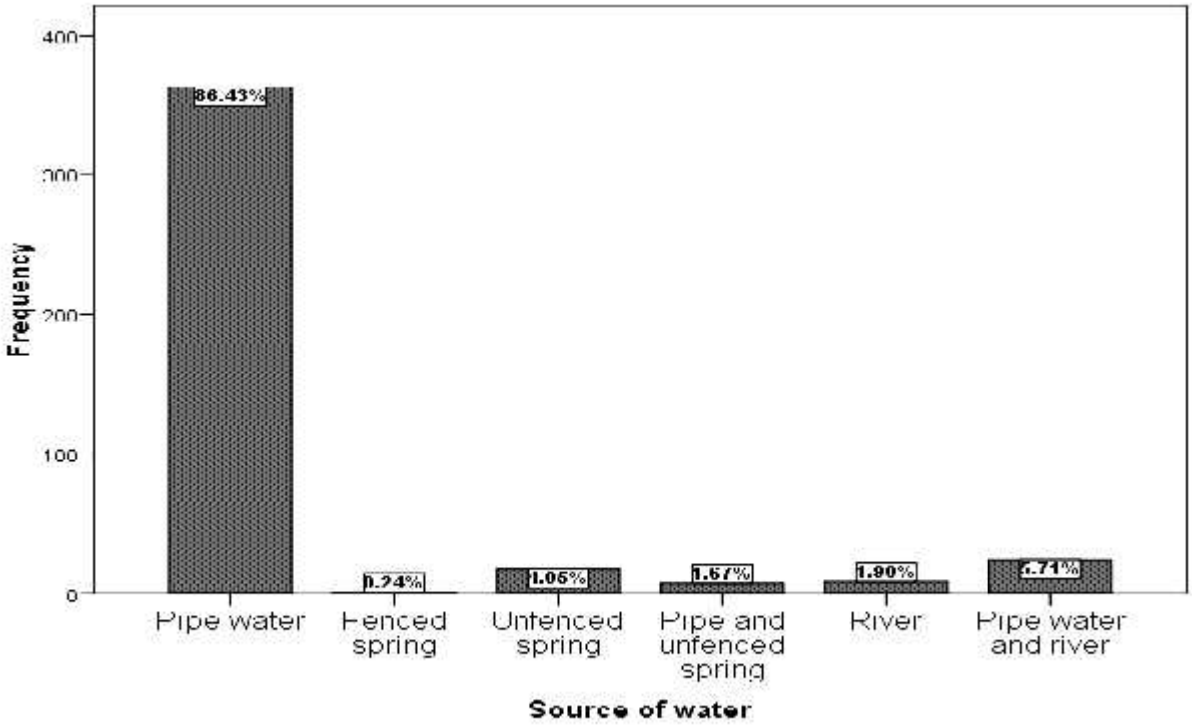

Figure 2:Sources of water for housholds of study children, Maksegnit town, April 2012

Families of two hundred fifty four (60.7%) children got water form sources above 20 meters away from their home and 118 (28.1%) and 48 (11.4%) got water for household consumption form sources in their compound (private piped water) and within 20meters from their home respectively. For families of 255 (60.7%) children the average time to fetch water (including waiting time to get water) was more than half an hour and for the rest it was below half hour. The average daily water consumption for families of 210 (50.0%), 198(47.1%) and 12 (2.9%) was 20-50liters/day/household, above 50 liters/day/household and below 20liters /day household.

Waste disposal

In the study area, three hundred forty eight (82.9%) families mostly dispose their domestic solid wastes on open field, fifty three (12.6%) dispose in a pit with cover, eight (2.9%) on a pit without cover and the remaining 11(2.6%) uses other means of disposal (burning, burying)

Among household who disposed their household solid waste on open field (348), the disposal field was less than 20meters for 66 (15.7%) and greater than 20meters for 282 (67.2%) of the households from their home.

Latrine availability and utilization

At the time of the study, two hundred forty one (57.4%) children were from families who had functional latrine whereas one hundred seventy nine (42.6%) children were form families who didn't have latrine. Majority of children's' families had latrine with cover (see Figure 3). The available latrines in the home were utilized by both adults and children in one hundred sixty seven households and by only adults for seventy four households. All families who had latrine used it on usual basis except one household.

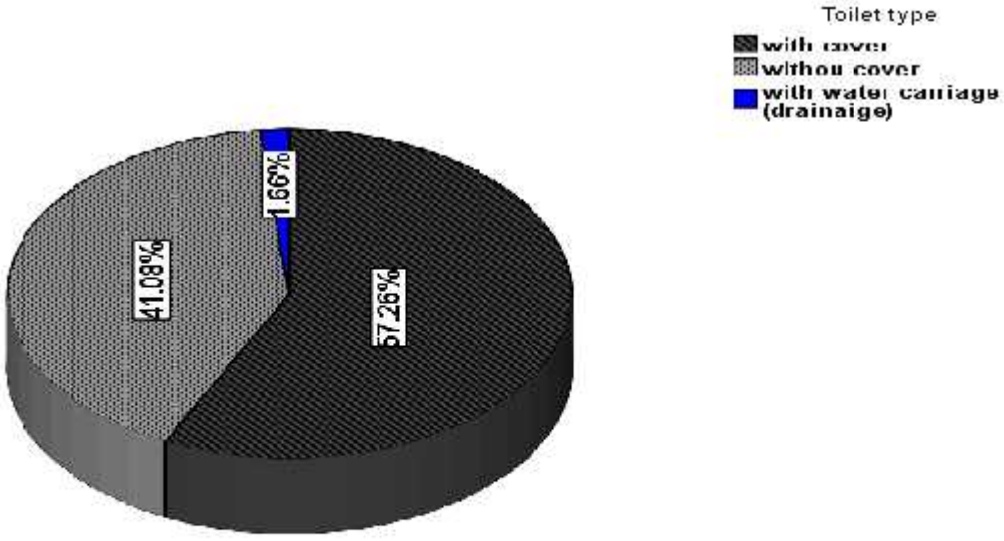

Figure 3: Type of toliet at Maksegnit town, April, 2012.

Number of fly

The number of flies was zero, one to four and greater or equal to five in houses of 31(7.4%), 325(77.4%) and 64(15.2%) study children. Flies were observed on faces of one hundred twenty eight (30.5%) children and were not observed in two hundred twenty two (69.5%) children.

The number of children with unclean, clean but with flies and clean face were 221(52.6%), 15(3.6%) 184 (43.3%) respectively. The number of children with and without discharge (nasal and/or ocular) was found to be 183(43.6%) and 237(56.4%) respectively.

Out of the total 407 children who washed their face on daily bases, flies were observed in 124 children and were not in 283 them. Among those 13 children who didn't wash their face on daily bases, flies were observed in four of them.

Among the total study children flies were also observed on face of 77(18.3%) children who had discharge on face of 51(12.1%) children who hadn't discharge. Flies were not observed in 106 (25.2%) and 186(44.3%) children who ha discharge and who hadn't discharge respectively.

Face washing

Out of the four hundred and twenty children, four hundred seven (96.9%) of them washed their face on daily bases and thirteen (3.1%) of them never washed their face. Face washing was practiced once per day by 137 (33.7%), twice per day by 148 (36.4%) and more than twice by 122 (30%) children who washed their face on daily basis. Using soap for face washing was practiced by two hundred forty eight children and out of these 109(44.0%), 84(33.9%) and 55(13.1%) used once per day, twice per day and more than twice per day respectively. Among children who washed their face with soap one hundred sixty two (65.3%) children shared the soap with other family member for face washing whereas eighty six (34.7%) children used privately.

4.3. Prevalence of active trachoma

The prevalence of active trachoma was found to be 23.8 %(100). It was more prevalent in males than females. Out of the total 420 children examined, active trachoma was detected in 57 (13.6%) and 43 (10.2%) males and female children respectively. This variation however was not statistically significant(X^2= 2.75, P=0.97). Among two hundred and nine male children examined for active trachoma, fifty seven (27.3%) of them had active trachoma and 43 (20.4%) females out of the two hundred and eleven female children had active trachoma. However it was not statistically significant (X^2 =2.75, P=0.97).

The magnitude of active trachoma is higher in children of households headed by Weavers (41.7%) followed by farmers (31.2%) and daily laborers than houses headed by Government (19.2%) merchants (17.4) and others (craftsman, military, tailors, priest, housewife and knitting) (23.4%) (X^2= 8.63, P=0.125). Among two hundred forty children whose mothers were illiterate, sixty three (26.2%) of them had active trachoma which accounts 15% of the total active trachomatous cases. Five children out of 26 mothers who can read and write had active trachoma.

The proportion of active trachoma among children, whose mothers had completed primary school education, was 3.6% of the total active trachoma cases. The proportion of active trachoma among children whose mothers had completed secondary school education and above was about 7% of the total trachomatous cases. This was not statistically significant ((X^2= 8.8, P=0.188).

Among one hundred forty eight children whose fathers were illiterate, forty six of them had active trachoma which accounts about half (11%) of the total active trachoma cases. Out of fifty six children whose fathers can read and write thirteen of them had active trachoma (3.1% of the total). For those children whose father had completed primary school education, the proportion of active trachoma was found in nineteen of them. Children from fathers who attended secondary school and above constitute about 5% of the total trachoma cases. Out of one hundred eleven children who shared same room in a family of five or more active trachoma was found in twenty five of them. This accounts 6% of the total trachomatous cases and 21.6% of children who shared one room from families above five. This variation was statistically significant ((X^2= 8.2, P=0.017).

Children who had active trachoma in families of 5 and below five accounted 5% and 12.9% of the total children with active trachoma respectively. This was not statistically significant ((X^2= 4.45, P=0.108). Seventy one children had active trachoma from two hundred sixty seven families whose monthly income was reported below 500 birr. This accounts 16.9% of the total trachomatous cases and 26.6% within this group. About seven percent of the total trachoma cases were from families whose monthly income was reported above five hundred birr. This was also not statistically significant (X^2= 3.23, P=0.199). The following tables (Table 3&4) below show the magnitude of active trachoma in relation to environmental/household and personal factors respectively. The proportion of active trachoma is highest among children in households in which water source is pipe (18.8%) (X^2= 7.36, P=0.025), above 20meters (17.4%)(X^2= 0.37, P=0.57), amount of water fetched per day is between 20-50literes (13.8%) (X^2= 3.43, P=0.179) and the time spent to get water is above half an hour (X^2= 11, P=0.001) (17.9%) (See Table 2).

Table 2: Prevalence of active trachoma in study children related to water availability, Maksegnit town, Gondar Zuria Woreda, April 2012 (N=420).

Factors	Children with active trachoma Number (%)	Total children examined
Water source		
Pipe	79(18.8)	363
Unfenced spring	4(1.0)	17
Fenced Well	6(1.4)	8
Pipe and unfenced spring	3(0.7)	8
River	8(1.9)	24
Distance of water source		
In the compound	15(3.6)	118
Below 20 meters		
Above 20meters	12(2.8)	48
Total		
	73(17.4)	254
Water fetched (household/day)		
Above 20 liters	40(9.5)	210
Between 20-50 liters	58(13.8)	198
Below 20 liters	2(0.5)	12
Time to fetch water		
Below 1/2hour		
	25 (5.9)	165
Above 1/2hours		
	75(17.9)	255

Active trachoma is more prevalent among children in households where food is cooked outside living room (21.2%) (X^2= 0.33, P=0.57), cooking houses without chimney(X^2= 0.25, P=0.87) (15.0%), energy source of animal dung and wood (15.2%)(X^2= 15.5, P=0.000). the prevalence of active trachoma was 15.2%, 4.5%,4.5% and 0% among children living in houses using energy source of wood and animal dung, animal dung , wood and others respectively. This difference was statistically significant (X^2= 15.5, P=0.000). It is also high among children from households who dispose waste on open field (20.5%), distance of open field above 20meters (21.6%) (X^2= 5.59, P=0.133).

Table 3: Prevalence of active trachoma related to cooking place, energy source in Maksegnit town, Gondar Zuria Woreda, April 2012.

Characteristics	Active trachoma Number (%)	Total
Cooking place		
In living room	11(2.6)	40
Outside living room	89(21.2)	380
Cooking inside home		
With chimney	5(12.5)	
Without chimney	6(15.0)	19
		21
Main energy source for cooking		
Wood	19(4.5)	135
Animal dung	17(4.1)	79
Wood and animal dung	64(15.2)	199
Others(burning, burying)	0(0.0)	7
Total	100 (23.8)	420

Table 4: Waste disposal, latrine availability, animal ownership, flies density and magnitude of active trachoma.

Characteristics	Children with active trachoma	Total examined
Waste disposal		
Open field	86(20.5)	348
Pit with cover	4(1.0)	8
Pit without cover	8(1.8)	53
Others (burning, burying)	2(0.5)	11
Open field distance from home		
Below 20meters	11(3.2)	66
Above 20meters	75(21.6)	282
Latrine availability		
Yes	50(11.9)	241
No	50(11.9)	179
Latrine type		
With cover	26(10.5)	138
Without cover	24(10)	99
With water drainage	0(0.0)	4
Animal dwelling		
Separated	6(11.3)	23
Not separated	8(15.1)	30
Time Animals kept together with family members		
Only at night	3(13.0)	13
Only at day time	1(4.3)	2
Both at night and day time	2(8.7)	8
Fly density		
0	5(1.2)	31
1-4	69(16.4)	325
>=5	26(6.2)	64

The proportion of active trachoma in households who disposed household waste on open field covers 20.5% of the total trachomatous case (X^2= 2.8, P=0.09). The prevalence of active trachoma in children from households with and without latrine is equal (11.9% in each case) (X^2= 2.9, P=0.087) .Among the total children from households where animals share the same room with family members (30) only at night, the prevalence was 13% (X^2= 0.002, P=0. 96) (see Table 5). Children from houses having fly density of 1-4 were 16.4% and 1.2% for those from houses with fly density of zero. This difference was statistically significant ((X^2= 12.2, P=0.002).

The prevalence of active trachoma in children who washed their face on daily bases and those not washed was 22.6% and 1.2% respectively. This was not statistically significant ((X^2= 1.9, P=0.201). it was also observed in 8.6%, 7.8% and 6.9% of children who washed their face twice, once and more than twice respectively had active trachoma. However this was not statistically significant(X^2= 0.2, P=0.99). The prevalence of active trachoma in children with fly face was 12.6% and 11.2% in children without fly on their face. This was statistically significant ((X^2= 31.4, P=0.000). it was also 16.2% and 7.6% in children with and without discharge respectively (X^2= 31.9, P=0.000).

Table 5: Prevalence of active trachoma in study children by face washing, Maksegnit town, Gondar Zuria Woreda, April 201

Characteristics	Children with active trachoma (Number (%)	Total children examined
Face wash		
Yes	95(22.6)	407
No	5(1.2)	13
Face washing per day		137
Once per day	32(7.9)	
Twice or per day	35(8.6)	148
More than twice per day	28(6.9)	122
Soap use for face washing		
Yes	51(12.5)	248
No	44(10.8)	159
Face washing with soap per		
Once day	21(8.5)	109
Twice	19(7.7)	84
More than twice	11(4.4)	55
Facial cleanness		
Clean	15(3.6)	184
Clean but with flies	2(0.5)	15
Unclean	83(19.7)	221
Flies on child's face		
Yes	53(12.6)	128
No	47(11.2)	292
Discharge		
Yes	68(16.2)	183
No	32(7.6)	237

4.4. Factors associated with active trachoma

In this study the factors associated with active trachoma were: fly density, discharge, flies on face, age of child, facial cleanness, time spent to fetch water, distance of water from home, and the type of energy source for fire fuel.

The Bivariate logistic regression analysis showed that the risk of active trachoma was more than three and half times in children from household with fly density of greater or equal to five than those in house with no fly (OR=3.588;95%CI 1.209,10.469) .

Children with discharge were ‘over 3 times more likely to have active trachoma than those children without discharge (OR=3.788; 95%CI: 2.348, 6.111). Children with unclean faces were over 6 times more likely to have active trachoma than children with clean faces (OR= 6.776; 95%CI: 3.714, 12.28) (see Table 6).

The multivariate analysis showed that children with flies on their face were over two time more likely to have active trachoma than those children without flies on their face(AOR=2.310, CI=1.32,4.05).It was also observed that children with unclean faces were four times more likely to have active trachoma than children with clean faces (AOR= 4.12, CI=1.92,8.81) and children from household using animal dung and wood as energy source of cooking were two times more likely to have active trachoma than those children from households using wood as a source of energy (AOR= 2.190, CI=1.152,4.163)(see Table 6).

Table 6. Bivariate and multivariate logistic regression on factors associated with active trachoma, Maksegnit town, Gondar Zuria Woreda, April 2012.

Factors	Bivariate OR (95% CI)	Multivariate OR (95%CI)
Number of Fly		
0	1.00	1.00
1-4	1.402(0.519,3.785)	0.44(0.14,1.4)
>=5	3.588(1.209,10.469)*	0.63(0.17,2.27)
Discharge		
No	1.00	1.00
Yes	3.788(2.348,6.111)***	0.61(0.33,1.1)
Fly on face		
No	1.00	1.00
Yes	3.684 (2.302,5.895)***	**2.310(1.32,4.05)***
Age group		
1-3 years	0.441 (0.23,0.842) *	2.1(0.1,4.4)
4-6years	0.513 (0.295,0.895) *	1.2(0.64,2.3)
7-9 years	1.00	1.00
Facial cleanness		
Clean	1.00	
Clean but with flies	1.733 (0.54, 8.4)	0.67(0.12,3.8)
Unclean	6.776(3.714,12.28) ***	**4.12(1.92,8.81)*****
Time spent to fetch water		
Below 30minutes	1.00	
Above 30minutes	2.33 (1.14,3.86)*	1.64(0.9,3)
Water source distance		
Below 20meters	1.00	1.00
Above 20meters	2.076 (1.267,3.402)*	1(0.28,3.6)
Source of water		
Pipe	1.00	1.00
Spring	2.34(1.11,4.9) *	1(0.3,3.6)
River	1.797(0.742.4.353)	1.3(0.58,2.9)
Energy source for cooking		
Wood	1.00	1.00
Animal dung	1.504(0.733,3.807)	0.9(0.4,2.
Animal dung and wood	2.894(1.638,5.113) ***	**2.190(1.152,4.163)***
Fathers educational level		
Illiterate	2.264 (1.267,5.436)**	1.4(0.59,3.4)
Grade 1-10	1.625 (0.788,3.349)	1.12(0.49,2.6)
Grade 12 and above	1.00	1.00

*=p<0.05. **= p<0.001,
***=p<0.0001
1.00= reference

5. DISCUSSION

The prevalence of active trachoma among children 1 to 9 years of age in the study area was found to be 23.8%. This shows that trachoma is still affecting a large segment of the children population.

This finding is much more in magnitude than finding of earlier studies carried out in 2005 in Brazil, Guatemala and Mexico where the prevalence of the inflammatory and follicular phase of the disease in children under 10 years old was 4.5% 1.9% and 1.9%, respectively (9). This discrepancy may be due to the changes in the epidemiology of trachoma (1,) due to the different efforts done to control it (11) and it might also be due to genetic difference for trachoma susceptibility (17). This result, however, is less in magnitude than other studies done in African countries like studies carried out in Nigeria(in 2009) (n=639, 35.7%), Niger (in2007) 43%(n=651)aged 1-5) and Sudan (in 2007) (N=7418, 64.5%)(14-19). The difference in prevalence between this study and the results of these studies done in may be explained by the difference in setting. This study also showed a less prevalence of active trachoma than other studies done in Amhara and Tigray regions of Ethiopia (22, 23). This reduction in magnitude of active trachoma in the study area may be due to the mass Azitromycine distribution that is carried out yearly in a two week campaign against trachoma in the study area.

This study showed flies on face is a significant risk factor for active trachoma in which children with flies on their face are more than twice to have active trachoma than those children whose face is without fly(AOR=2.310, CI=1.32, 4.05).Similar result was also obtained in studies carried out in Nigeria (2009) where a child with flies on face was four times more likely to have active trachoma than those children without flies.

The risk of flies on face for active trachoma was also reported from studies in Tanzania (2006) and Gambia (2010), Sudan and in Amhara region of Ethiopia (2007) (14, 19, 30, 32). This result was also consistent with a study done by Ilya Golovaty et'al (Ankober Ethiopia in 2009,) where the risk of active trachoma in children with flie on their face was more four time than those children without flies on their face which is twice more than the result in this study.

This result is in line with the general truth that flies are the vectors that transmit the infectious agent from person to person (1).

The study also showed that using animal dung and wood as fire fuel increases the risk of active trachoma in children age 1 to 9 years by more than two than those who uses wood as a energy source (AOR=2.190, CI= 1.152,4.163). This result was also reported in a study done in Tigray region (19). The association of active trachoma with animal dung and wood as a risk factor is probably due to the indirect effect of the smoke which resulted from the use of animal dung and wood as fire fuel.

This is probably because the smoke from the wood and animal dung facilitates the occurrence of tearing and discharges from children's eyes (as they are likely to be with their mother when food is cooked) which attracts flies to their faces. This will facilitate the transmission of the causative agent from flies to children's' eyes (21, 22, 28).

6. LIMITATIONS OF THE STUDY

Even though the study was carried out using WHO gold standard criteria for the evaluation of active trachoma it was based solely on signs of active trachoma. However these signs can also be manifestations of other ocular diseases which may overestimate the prevalence of the active than what it actually may be.

It was also difficult to collect accurate data on some variable of the study such as fly density in which their number varies during the day (22).

Estimation of economic status of study households was based on respondents reply to the interviewer's question and may be unreliable.

Because of financial and human power reasons, it was impossible to include children who live outside the town villages which make sound to generalize the result only to those children in the town.

It was also impossible to establish a causal relationship between the factors identified and active trachoma as it was a cross sectional study.

7. CONCLUSION

The prevalence of active trachoma was high in the study area which indicates that active trachoma is still a major public health concern among children age 1 to 9 years in the study area. Source of energy for cooking food, number of fly and unclean face were factors associated with active trachoma.

9. RECOMMENDATIONS

Trachoma prevention programs including community based health and hygiene education, improving source of energy for cooking such as using smoke-free of energy sources such as electricity, active fly control are the measures needed to reduce the magnitude of active trachoma. As a result, both governmental and nongovernmental organizations, who are working in eliminating blinding trachoma, need to take these activities into consideration in their preventive strategies.

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ANNEXES

Annex I: Assessment form for active trachoma and risk factor.

Code number	Child		Discharge (Ocular or/and nasal)(√)		Flies on the face (√)		Facial cleanliness (√)			Fly density(√)			sign of active trachoma (√)	
	Age	Sex	Yes	No	No	Yes	Clean	Clean but with flies	Unclean	0	1-4	≥5	No	Yes

Data collectors

Name ---------- signature ----------

Date of data collection ----------

Annex II: The World Health Organization standardized grading system for trachoma.

	**Normal eye lid**
	**Trachomatous Inflammation - Follicular (TF):** The presence of five or more follicles of at least 0.5 mm in the upper tarsal conjunctiva.
	**Trachomatous Inflammation- Intense (TI):** Pronounced inflammatory thickening of the tarsal conjunctiva that obscures more than half of the normal deep tarsal vessels. (Photo shows TF and TI.)
	**Trachomatous Scarring (TS):** Presence of scarring in the tarsal conjunctiva.
	**Trachomatous Trichiasis (TT):** At least one eyelash rubs on the eyeball, or there is evidence of recent removal of in-turned eyelashes.
	**Corneal Opacity (CO):** Easily visible corneal opacity over the pupil.

Source: Zithromax in the elimination of blinding trachoma: A program manager's guide. iTi: International trachoma initiative. The pictures shaded with blue color are the interests of the study (which are the active stages of the diseases)

Annex III: Consent form

***Dear* participants**

Hello! My name is----------. I am from university of Gondar college of Medicine and Health Sciences, Institute of Public Health, working as a research team in the Institute. I am going to conduct a research on prevalence and associated factors of active trachoma among children age 1-9 years old. The aim of the study is to assess the prevalence of active trachoma and associated factors among children age 1-9 years old in Maksegnit town, Gondar Zuria woreda, Northwest Ethiopia, 2012. You and your child are chosen to participate in this study by chance. The purpose of this study is to generate information about magnitude of active trachoma and associated factors among health children in Maksegnit town which may help policy makers, responsible persons, stakeholders and significant others to take actions based on the findings. The study will involve various intimate and private life questions. In order to effectively attain the objective of the research, we are requesting your help. There are questions related to household/environmental factors associated with active trachoma for you to tell and there is no need to tell your name .No individual responses will be reported. Your responses will be completely confidential. It is your full right to refuse in responding any question or all of the questions. However, your honest answers to these questions will help us in better understanding of magnitude of low back pain and associated factors, so; we are requesting you to give your honest responses and keep participation. It will take a maximum of 15 minutes to answer these questions.

Would you willing to participate please?

If you are pleasurable to participate in the study can I go to the next page?

For any further question, contact the investigator:

Name: Destaye Shiferaw

Phone number: +251-918-03-22

E-mail: destayeshiferaw@yahoo.com

Annex IV: Information sheet to get permission for the research

Introduction

This information sheet is prepared to explain the research project that you are asked to join by a group of research investigators.

The main aim of this research project is to assess the prevalence and associated factors of active trachoma among children age 1-9 years old at community level. The research team includes a final year MPH graduate student and two senior advisors from University of Gondar, institute of public and CMHS.

Name of Principal Investigator: Destaye Shiferaw

Name of Advisors: Professor Yigzaw Kebede

Mr. Haimanot G/Hiwot

Name of the Sponsor: University of Gondar and ORBIS International Ethiopia

Name of Organization: University of Gondar, College of Medicine and Health Sciences, Institute of Public Health**:**

This information sheet is prepared by the above mentioned researcher whose main aim is "To assess the prevalence of active trachoma and associated risk factors among children age 1-9 years old in Maksegnit town, Gondar Zuria woreda, North West Ethiopia, 2012. The investigator is a final year MPH student with advisors from institute of public health, College of Medicine and Health Sciences, University of Gondar.

Purpose:

The purpose of the study is to assess the prevalence of active trachoma and associated risk factors among children aged 1-9 years old in Maksegnit town, Gondar Zuria woreda, Northwest Ethiopia, 2012. This study is primarily designed to determine the prevalence and associated risk factors of active trachoma among children age 1-9 years old. Results from this study will be used to assist in making recommendations for those who are responsible in developing preventive action plans to avoid visual impairment and blindness by trachoma.

Procedure:

This study uses community based cross-sectional study design, through using face to face administered structured Questionnaire and observation. Permission will be processed from the University of Gondar, Maksegnit town administration and from households selected for the study.

Risk and/or Discomfort:

There is no any risk or discomfort that you will face by participating in this research except dedication of time for responding the questionnaires. Any personal information registered in registration books will not be copied and transferred to other bodies.

Every piece of information will be kept confidentially. There is no any risk in participating in this research project.

Benefits: though you may not be the direct beneficiaries of this research the information that we get from this research would help to reduce visual impairment and blindness caused by trachoma in children in particular and the whole community in general through the identifying of risk factors for active trachoma and in designing intervention programs.

Incentives/Payment for Participating:

Study participants will have no incentives or payments due to their participation.

Confidentiality: All Personal identifiers & personal information will not be taken. The information collected from this research project will be kept confidential. Information will be accessed by the researcher and only.

Right to refuse or withdraw: you do not have to tell your name to the data collector and all your responses and results obtained will be kept confidentially by using coding system whereby no one have access to your responses.

Persons to contact:

This research project will be reviewed and approved by the ethical committee of the University of Gondar. If you want to know more information you can contact the committee through the address below. If you have any question you may contact the following individuals.

Investigator:

Destaye Shiferaw: University of Gondar, College of Medicine and Health Sciences

Mobile: +252-918-03-22-16

E-mail: destayeshiferaw@yahoo.com

Advisors:

1. Prof. Yigzaw Kebede
   E-mail: gkyigzaw@yahoo.com
2. Mr. Haimanot G/Hiwot
   E-mail: haminot_hiwot@yahoo.com

Annex V: English version of questionnaire

University of Gondar

College of medicine and health sciences

Institute of public health

Face to face interview Questionnaire for assessment of prevalence and risk factors of active trachoma among children age 1-9 years old.

Questionnaire identification number_____

Verbal consent form before conducting interview

Greetings

Hello, my name is _____working in the research team of university of Gondar, institute of public health. Today I am here to ask you few questions related to the study.

Your name will not be written in this format and will never be used in connection with any information you tell us. All information given by you will remain strictly confidential. Your participation is voluntary and you are not obliged to answer any question you do not wish to answer. If you feel with the interview please feel free to stop at any time. Nevertheless your willingness to answer all the questions would be appreciated and your correct answer to the questions can make the study achieve the goal. Therefore you are kindly requested to respond genuinely and voluntarily with patience. May I have your permission to pursue with the questionnaire?

1. If yes, could I continue to the next page
2. If no, continue to the next participant by writing the reasons for refusal.

Name and signature of data collector_____

Date of interview_____

Checked by supervisor_____

Name and signature of the data collector----------

Date of interview----------

Checked by supervisor----------

Name and signature----------

Date----------

Part I: Socio-demographic data

1. *What is your religion?*

- ☐ *Orthodox Christian*
- ☐ *Muslim*
- ☐ *Catholic*
- ☐ *Protestant*
- ☐ *Other----------*

2. *What is your ethnicity?*

- ☐ *Amhara*
- ☐ *Oromo*
- ☐ *Tigre*
- ☐ *Other----------*

3. *What is the educational level of the father?*

- ☐ *Can't read and write*
- ☐ *Read and write*
- ☐ *Primary education*
- ☐ *High school*
- ☐ *Diploma*
- ☐ *Degree and above*

4. *What is the educational level of the mother?*

- ☐ *Can't read and write*
- ☐ *Read and write*
- ☐ *Primary education*
- ☐ *High school*
- ☐ *Diploma*
- ☐ *Degree and above*

5. *What is the occupation of Head of Household?*

- ☐ *Farmer*
- ☐ *Daily laborer*
- ☐ *Government employee*
- ☐ *Merchant*
- ☐ *House wife*
- ☐ *Other/s (Specify)_____*

6. *What is the monthly income of the household head----------*

II. Individual factors

1. Where the child does spent most of his time in the day?

- ☐ Playing on street
- ☐ In the home
- ☐ At school
- ☐ Other (Specify) _____

2. How often does the child wash his/her face in a day?

- ☐ Once
- ☐ Twice
- ☐ More than two

3. Does the child use soap for face washing?

- ☐ Yes
- ☐ No

4. If “Yes” for question number “3”, how often soap is used to wash the child face?

- ☐ One time
- ☐ Two times
- ☐ More than two times

Part III. Environmental factors

1. Do you have animals (cattle, sheep, goats, horse)?
   - ☐ Yes
   - ☐ No
2. . If your answer for question number “4” is ‘’Yes” are animals (cattle, sheep, and goats) kept in the house where household members are living?
   - ☐ No
   - ☐ Yes
3. If “Yes” for question number 2, when do they be kept together with members of the household?
   - ☐ Only at night
   - ☐ Only during the day
   - ☐ Both at night and during the day
4. Where is the location of your cooking place for the household foods?
   - ☐ Inside living room
   - ☐ Outside living room
5. If inside “house” has it a chimney/outlet
   - ☐ No
   - ☐ Yes
6. What is the domestic energy source you use for cooking most of the time?
   - ☐ Wood
   - ☐ Electric and kerosene
   - ☐ Animal dung
7. What is the source of water for the household?
   - ☐ Protected well
   - ☐ Protected spring
   - ☐ Unprotected well
   - ☐ Unprotected spring
   - ☐ River
   - ☐ Piped water

8. What is the distance to fetch water for the household use?

- ☐ In compound
- ☐ Less than 20meters
- ☐ Greater than 20meteres

9. How much time will it take to walk and wait for water (round trip?)?

- ☐ 30 minutes
- ☐ 30minutes

10. How much water do you fetch per day for the household?

- ☐ Less than 20liters
- ☐ Between 20-50liters
- ☐ Greater than 50liters

11. Where do you dispose household garbage?

- ☐ In open field
- ☐ In covered pit
- ☐ In uncovered pit

12. If "in open field" how far is it form the house?

- ☐ Less than 20meters
- ☐ Greater than 20meters

13. Do you have latrine?

- ☐ Yes
- ☐ No

14. If "Yes" is it functional?

- ☐ Yes
- ☐ No

15. If "Yes" what type is it?

- ☐ Covered pit latrine
- ☐ Uncovered pit latrine
- ☐ Water carriage system

16. If "Yes "for question number "7" who use the latrine in the household?

- ☐ Only adults
- ☐ Only children
- ☐ Both adults and children

17. If "Yes" for question number "7" do you use it regularly?

- ☐ Yes
- ☐ No

Annex VI: የመጠይቅ ፈቃድ

የተከበሩ የጥናቱ ተሳታፊ

የዚህ ጥናት ዋና አላማ በ2004 ዓ.ም በማከሰኝት ከተማ በሚግኙ ቤቶች ካሉት እድሜ አቸዉ ከ 1-9 አመት ከሆኑት ልጆች ያልውን የአፍለኛ ዓይን ማዝ በሽታ መጠንና ለበሽታዉ መከሰት ተያያዥ የሆኑ ምክንያቶችን ለማጥናት ነው። በአጋጣሚ እርስዎ እና ልጅዎት (እድሜ 1-9) በዚህ ጥናት እንድትሳተፉ ተመርጠጣችኋል። የዚህ ጥናት ጥቅም የበሽታውን መጠን በፐርሰንት ምን ያህል እንደሆነ ከልጆቹ በሚደረገው የምርመራ ውጤት መሰረት እና እርስዎ በሚሰጡን መላሽ መረጃዎችን በማሟላት በተገኘው ውጤት መሰረት መረጃውን ለፖሊሲ አዘጋጆችና እንዲሁም ሌሎችም ለሚመለከታቸው ባለድርሻ አካላት በማሳወቅ በሽታውን ለመከላከል የሚረዱ አቅጣቻዎችን በመቀይስ በበሽታው የሚመጣውን ዐይነ-ስውርነት ለመከላከል ሊረዳ ይችላል በሚል ነዉ። በጥናቱ ውስጥ ለበሽታው መከሰት ተያያዝነት ያላቸው ግላዊ እና የአካባቢያዊ ሁኔታዎችን መበጠይቁ ተካተዋል። ጥናቱ በትክክል አላማውን እንዲመታ የእርሰዎና የልጅዎ ትብብር ወሳኝነት አለው። በዚህ መጠይቅ ላይ ስም መናገር አያስፈልግም :: የማንኛውም ግለሰብ ሃሳብ ብቻውን ይፋ እንዲዎጣ አይደረግም ሀሳቡ ሙሉ በሙሉ በሚስጥር የተጠበቀ ነው። በመጠይቁ ያለመሳተፍ በሙሉም ሆነ በከፊል ጥያቄዎችን ያለመመለስ ሙሉ መብት አለዎት። ስለዚህ ግልፅ የሆነ ምላሽንና ከልብ የመነጨ ተሳትፎዎን እንዲሰጡን በአክብሮት እንጠይቃለሁ። መጠይቁን ለመሙላት ሊወስድ የሚችለው ጊዜ ቢበዛ 15 ደቂቃ ነው።

ለመሳተፍ ፈቃደኛ ነዎት;

ለመሳተፍ ፈቃደኛ ከሆኑ ወደ ሚቀጥለው ገፅ ልለፍ.

ማንኛውም ሊያነሱ የሚፈልጉት ጥያቄ ካለዎት ተመራማሪውን በሚቀጥለው አድራሻ ማነጋገር ይችላሉ

ስም ፡ ደስታየ ሽፈራው

ስ. ቁ፡ o918-03-22-16

Annex VI: የጥናቱ የመረጃ ቅጽ

መግቢያ፡ ይህ የመረጃ ቅጽ የተዘጋጀው ስለ ጥናቱ አጠቃላይ መረጃ ለጥናቱ ተሳታፊዎች ገለጻ ለማድረግ ነው፡፡

የጥናቱ ዋና አላማ ላፍለኛ የአይን ማዝ በሽታን እድሜአቸው ከ 1-9 አመት በሆኑ ሕጻናት ላይ ያለውን መጠንና ለበሽታው መከሰት ተያያዥነት ያላቸውን ነገሮችን ለማጥናት ነው፡፡ ጥናቱ የሚካሄደው በጎንደር ዩኒቨርሲቲ ሕክምናና ጤና ሳይንስ ኮሌጅ የጤና አጠባበቅ ኢንስቲቲዩት የመጨረሻ አመት(ተመራቂ) ተማሪ ሲሆን ሁለት በጤና አጠባበቅ ኢንስቲቲዩት የሚገኙ ነባር አማካሪዎችን አሉት፡፡

የጥናቱ አጥኚ፡ ደስታየ ሽፈራው

አማካሪዎች፡ ፕሮፌሰር ይግዛው ከበደ

አቶ ሐይማኖት ገ/ሕይወት

ድጋፊ ሰጭ፡ ጎንደር ዩኒቨርሲቲ እና ኦርቢስ ኢንተርናሽናል ኢትዮጵያ

የድርጅቱ ስም፡ ጎንደር ዩኒቨርሲቲ ሕክምናና ጤና ሳይንስ ኮሌጅ የሕብረተሰብ ጤና አጠባበቅ ኢንስቲቲዩት

የጥናቱ ዓላማ፡

ይህ የመረጃ ቅጽ ከላይ በተጠቀሰዉ አጥኚ (የመጨረሻ አመት የማሕበረሰብ ጤና አጠባበቅ ተማሪ) እና ሁለት ነባር አማካሪዎችን ያካተተ ሲሆን የጥናቱም ዋነኛ አላማው እድሜአቸው ከ1-9 አመት በሆኑት ህጻናት መካከል ያለውን አፍለኛ የዓይን ማዝ መጠንና ለበሽታው መከሰት ተያያዥ የሆኑ ነገሮችን በ2004 ዓ.ም በማከሰኝት ከተማ ለማጥናት ነው፡፡ ጥናቱ በዋነኛነት የበሽታውን መጠንና ተያያዥ መክኒያቶችን በማጥናት በሚገኘው ውጤት መሰረት መረጃዎችን እና አስተያየቶችን ለሚመለከታቸው አካላት በመሰጠት በአይን ማዝ ምክንያት የሚከሰተውን የእይታ መቀነስና ዐይነ-ስውርነትን ለመከላከል የሚያስችሉ መከላከያ መንገዶችን ለመቀየስ ለማሰቻል ነው፡፡

የጥናቱ ሒደት

ጥናቱ ማህበረሰቡ ውስጥ የሚካሔድ የአጭር ጊዜ ጥናት ሲሆን ጥናቱን ለማካሔድ ወጥ የሆነ ቃለ-መጠይቅ፤ ምልከታና እነዲሁም አፍለኛ የዓይን ማዝ ምልክቶችን ለመለየት የዓይን ምርመራ ይደረጋል፡፡ ጥናቱን ለማካሄድ ከጎንደር ዩኒቨርሲቲ፣ ከማከሰኚት ከተማ አስተዳደር እንዲሁም ለጥናቱ ከተመረጡት ቤቶች እና ከጥናቱ ተሳታፊዎች ፈቃድ ይገኛልል፡፡

ጉዳት፡ ለቃለ መጠይቁ ከሚያሰፈልጉት ጥቂት ደቂቃዎች በስተቀር በጥናቱ ተሳታፊዎች ምንም አይነት ጉዳት አይደርስም፡፡ማንኛውም መረጃ በሚስጢር ይያዛል፤ ከተምራማሪው ውጪ ለሌላ አካል ተላለፎም አይሰጥም፡፡

የጥናቱ ጥቅም፡

ከጥናቱ ይሚገኘው መረጃ በሽታው በሕጻናት ብሎም በአጠቃላይ ሕብረተሰቡ ላይ የሚያሰከትለውን የአይን ስውርነት ለመከላከል ለሚደረጉ ጥረቶች የራሱን አስትዋጽዎ ያደርጋል፡፡

ማበረታቻ/ክፍያ፡

የጥናቱ ተሳታፊዎች በጥናቱ በመሳተፋቸው ምክንያት የተለየ የሚያገኙት ጥቅም አይኖርም፡፡

ሚስጥር ጠባቂነት፡ በጥናቱ የተገኘ ማንኛውም መረጃ (የተሳታፊ ግላዊ እና ማንናውም መረጃ) በሚስጢር ይያዛል፡፡ እነዲሁም የጥናቱ ዉጤት በተናጠል ይፋ ኤሆንም፡፡

በጥናቱ ያልመሳተፍ መብት፡

ተሳታፊዎች ስማቸውን ለመረጃ ሰብሳቢዎች ያለምናገርና በፈልጉት ሰኣት ከጥናቱ መዉጣት/መተው/ምላሽ ያለመስጠት ሙሉ መብት አላቸው፡፡ የጥናቱ ተሳታፊዎች የሚሰጡት ማንኛውም መለስ በሚስጢር ይያዛል፡፡

መረጃ ማግኘት ቢፈልጉ፡

ይህ ጥናት በጎንደር ዩኒቨርሲቲ ኢቲክስ ኮሚቴ ታይቶ ይጸድካል፡፡የጥናቱ ተሳታፊዎች ለበለጠ መረጃ እንዲሁም ላላቸው ማንኛውም ጥያቄ የሚከተሉትን አድራሻዎች መጠቀም ይችላሉ፡፡

ጢናቱን የሚያጠናው፡

ደስታየ ሽፈራው ፡- ጎንደር ዩኒቨርስቲ ሕክምናና ጤና ሳይንስ ኮሌጅ
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Annex VIII: ቃለ-መጠይቅ

ጎንደር ዩኒቨርሲቲ

ሕክምናና ጤና ሳይንስ ኮሌጅ

የማሕበረሰብ ጤና አጠባበቅ ኢንስቲቱት

የቃለ-መጠይቀ መለያ ቁጥር----------

አፍለኛ የዓይን ማዝ(ትራኮማ) ላይ ጥናት ለማድልግ የተዘጋጀ ቃለ-መጠይቅ

ጤና ይስጥልኝ ስሜ_____ይባላል፡፡ የመጣሁት ከጎንደር ዩኒቨርሲቲ የማሕበረሰብ ጤና አጠባበቀ ኢንስቲቱት

የምርምር አባል ነው፡፡ ዛሬ ከዚህ የመጣነው በአፍልኛ ዓይን ማዝ ላይ ለምናደርገው ጥናት የሚረዱ አንዳንድ ጥያቄዎችን ለመጠየቅ ነው፡፡

የዚህ ጥናት ዋና አላማ በ2004 ዓ.ም በማከሰኝት ከተማ በሚገኙ ቤቶች ካሉት እድሜ አቸዉ ከ 1-9 ትመት በሆኑት ልጆች ያልውን የአፍለኛ ዓይን ማዝ በሽታ መጠንና ለበሽታዉ መከሰት ተያያዥ የሆኑ ምክንያቶችን ለማጥናት ነው፡፡ በአጋጣሚ እርስዎ እና ልጅዎት (እድሜ 1-9 አመት) በዚህ ጥናት እንድትሳተፉ ተመርጠጣችኋል፡፡ የዚህ ጥናት ጥቅም የበሽታውን መጠን በፐርሰንት ምን ያህል እንደሆነ ከልጆቹ በሚደረገው የምርመራ ውጤት መሰረት እና እርስዎ በሚሰጡን መላሽ መረጃችን በማሚላት በተገኘው ውጤት መሰረት መረጃውን ለፖሊሲ አዘጋጆችና እንዲሁም ሌሎችም ለሚመለከታቸው ባለድርሻ አካላት በማሳወቅ በሽታውን ለመከላከል የሚረዱ አቅጣቻዎችን በመቀይስ በበሽታው የሚመጣውን ዐይነ-ስውርነት ለመከላከል ሊረዳ ይችላል በሚል ነዉ፡፡ በጥናቱ ውስጥ ለበሽታው መከሰት ተያያዝነት ያላቸው ግላዊ እና የአካባቢያዊ ሁኔታዎችን መበጠይቁ ተካተዋል፡፡ ጥናቱ በትክክል አላማውን እንዲመታ የእርሰዎ እና የልጅዎ ትብብር ወሳኝነት አለው፡፡ በዚህ መጠይቅ ላይ ስም መፃፍ አያስፈልግም፤የማንኛውም ግለሰብ ሃሳብ ብቻውን ይፋ እንዲዎጣ አይደረግም፤ ሀሳቡ ሙሉ በሙሉ በሚስጥር የተጠበቀ ነው፡፡ በመጠይቁ ያለመሳተፍ እና በሙሉም ሆነ በከፊል ጥያቄዎችን ያለመመለስ ሙሉ መብት አለዎት፡፡ ስለዚህ ግልፅ የሆነ ምላሽንና ከልብ የመነጨ ተሳትፎዎን እንዲሰጡን በአክብሮት እንጠይቃለን፡፡ መጠይቁን ለመሙላት ሊወስድ የሚችለው ጊዜ ቢበዛ 15 ደቂቃ ብቻ ነው፡፡

ለመሳተፍ ፈቃደኛ ነዎት? ለመሳተፍ ፈቃደኛ ከሆኑ ወደ ሚቀጥለው ገፅ ልለፍ.

ማንኛውም ሊያነሱ የሚፈልጉት ጥያቄ ካለዎት ተመራማሪውን በሚቀጥለው አድራሻ ማነጋገር ይችላሉ፡፡

መረጃ የሰበሰበው ስምና ፊርማ_____

መጠይቁ የተደረገበት ቀን_____

መረጃውን ያረጋገጠው ስምና ፊርማ _____ ቀን----------

<u>ክፍል አንድ፡-</u> ማሕበራዊ መረጃዎች

1. ሐይማኖትዎ ምንድን ነው?

- ☐ ኦርቶዶክስ
- ☐ ሙስሊም
- ☐ ካቶሊክ
- ☐ ፕሮቴስታንት
- ☐ ላይ--------

2. ብሔርዎ ምንድን ነዉ?

- ☐ ኣማራ
- ☐ ትግሬ
- ☐ ኦሮሞ
- ☐ ሌላ--------

3. የህጻኑ/ኗ እናት የትምህርት ደረጃ ምንድን ነው?

- ☐ ያልተማረች
- ☐ ማንበብና መጻፍ የምትችል
- ☐ አንደኛ ደረጃ
- ☐ ሁለተኛ ደረጃ
- ☐ ዲፕሎማ
- ☐ ዲግሪ እና ከዚያ በላይ

4.የህጻኑ/ኗ ኣባት የትምህርት ደረጃ ምንድን ነው?

- ☐ ያልተማረ
- ☐ ማንበብና መጻፍ የሚል
- ☐ አንደኛ ደረጃ
- ☐ ሁለተኛ ደረጃ
- ☐ ዲፕሎማ
- ☐ ዲግሪ እና ከዚያ በላይ

5. የአባውራ የስራ ምንድን ነው?

- ☐ ኦርሶ ኡደር
- ☐ የቀን ሰራተኛ
- ☐ የመንግሰት ሰራተኛ
- ☐ ነጋዴ
- ☐ የቤት እመቤት
- ☐ ሌላ (ይገለጽ)------

5. *ወርሃዊ ገቢዎት ምን ያህል ነው*(የኢትዮጵያ ብር) ----------

<u>ክፍል ሑለት</u>፡- ከግለሰብ(ሕጻኑ/ኗ ጋር ተያያዥነት ያላቸው መረጃዎች

1. ሕጻኑ/ኗ አብዛኛውን ጊዜ የሚያሳልፈው የት ነው
   - ☐ *መንገድ ላይ በመጫወት*
   - ☐ ቤት ውስጥ
   - ☐ ትምህርት ቤት
   - ☐ ሌላ (ይገለጽ)----------
2. ሕጻኑ/ኗ በቀን ስንት ጊዜ ፊቱን/ቷን ይታጠባል/ትታጠባለች?
   - ☐ አንድ ጊዜ
   - ☐ ሁለት ጊዜ
   - ☐ ከሁለት በላይ
3. ሕጻኑ/ኗ ፊቱን ሲታጠብ ሳሙና ይጠቀማለ/ትጠቀማለች?
   - ☐ አዎ ይጠቀማል/ትጠቀማለች
   - ☐ አይጠቀምም /አትጠቀምም
4. ለተራ ቁጥር "3" መልስዎ "አዎ ይጠቀማል/ትጠቀማለች" ከሆነ፣ ሳሙና ስንት ጊዜ ይጠቀማለ/ትጠቀማለች?
   - ☐ አንድ ጊዜ
   - ☐ ሁለት ጊዜ
   - ☐ ከሁለት በላይ

<u>ክፍል ሶስት</u>፡- አካባቢያዊ ተያያዥነት ያላቸው

1. የቤት እንስሳት (የቀንድ ከብት፣ በግ፣ ፍየል፣ፈረስ) አለዎት?
   - ☐ አዎ
   - ☐ የለም
2. ለተራ ቁጥር "1" መልስዎ አዎ ከሆነ እንስሳዎቹ *መኖሪያ* ከቤተሰቡ *መኖሪያ* ለብቻው የተለየ ነው?
   - ☐ የተለየ አይደለም
   - ☐ የተለየ ነው
3. ለተራ ቁጥር "2" መልስዎ "የተለየ አይደለም" ከሆነ እንስሳዎቹ ከቤተሰቡ *መኖሪያ* ጋር የሚቆዩት *መቼ* ነው?
   - ☐ *ማታ ብቻ*
   - ☐ ቀን ብቻ
   - ☐ *ማታ* እና ቀን
4. ምግብ የምታበስሉት የት ነው?
   - ☐ ቤት ውስጥ
   - ☐ ከቤት ውጭ
5. ለተራ ቁጥር "4" መልስዎ "ቤት ውስጥ" ከሆነ የጭስ ማስዎጫ አለው?
   - ☐

አዎ አለው
☐ የለም

6. ምግብ ለማብሰል የምትጠቀሙት ዋነኛ የሐይል ምንጭ ምንድነው?
☐ እንጨት/ባዮጋዝ
☐ ኤሌክትሪክና ነጭ ጋዝ
☐ ኩበት

7. ለቤት የምትጠቀሙት ዉሃ የምታገኙት ከየት ነው?
☐ ከታጠረ ጉድጓድ
☐ ከታጠረ ምንጭ
☐ ካታጠረ ጉድጓድ
☐ ካታጠረ ምንጭ
☐ ከወንዝ
☐ ከቧንቧ

8. ውሃ ለመቅዳት ምን ያህል ርቀት ትጓዛላችሁ?
ግቢ ውስጥ ነው
☐ ከ 20 ሜትር በታች
☐ ከ 20 ሜትር በላይ

9. ውሃ ቀድቶ ለመመለስ ምን ያህል ጊዜ ይፈጅባችኋ?
☐ ከ 30 ደቂቃ በታች
☐ ከ 30 ደቂቃ በላይ

10. በቀን ለቤት ምን ያህል ዉሃ ትቀዳላችሁ?
☐ ከ 20 ሊትር በታች
☐ ከ 20- 50ሊትር
☐ ከ 50ሊትር በላይ

11. የቤት ቆጣቢ የምታስወግዱት የት ነው?
☐ ሜዳ ላይ
☐ ክዳን ካለው ጉድጓድ
☐ ክዳን ከሌለው ጉድጓድ

12. ለተራ ቁጥር “11” መልስዎ “ሜዳ ላይ” ከሆነ ከቤታችሁ ምን ያህል ይርቃል?
☐ ከ 20 ሜትር በታች
☐ ከ 20 ሜትር በላይ

13. ሽንት ቤት አላችሁ?
☐ አዎ አለ
☐ የለም

14. መልስዎ “አዎ አለ” ከሆነ ሽንት ቤቱ በአሁኑ ጊዜ አገልግሎት እየሰጠ ነው?
☐ አዎ
☐ አይደለም

15. ለተራ ቁጥር 8 መልስዎ አዎ ከሆነ ሽንት ቤቱ ምን አይነት ነው?
☐ ክዳን ያልው
☐ ክዳን የሌለው
☐ ዉሃ ፍሳሽ ያለዉ

16. ለተራ ቁጥር 8 መልስዎ አዎ ከሆነ ሽንት ቤቱ አገልግሎት የሚሰጠው ለማን ነው?
☐ ለአዋቂዎች ብቻ
☐ ለህጻናት ብቻ
☐ ለአዋቂዎች እና ለህጻናት

17. ለተራ ቁጥር “7” መልስዎ አዎ ከሆነ ሽንት ቤቱን ሁልጊዜ ትጠቀሙበታላችሁ?
☐

አዎ
☐ የለም

እናመሰግናለን!!

DECLARATION

I, the undersigned, senior MPH student declare that this thesis is my original work in partial fulfillment of the requirement for the degree of Master of Public Health.

Name: Destaye Shiferaw Alemu

Signature: _____

Place of submission: institute of Public Health, College of Medicine and Health Sciences, University of Gondar.

Date of Submission: _____

This thesis work has been submitted for examination with my/our approval as University advisor(s).

Advisors

Name	Signature
Prof. Yigzaw Kebede	_____
Mr. Haimanot G/Hiwot	_____